

ABSTRACT OF THE DISCLOSURE

5 The sensitivity of enzyme-based polarographic electrodes to oxygen concentration
can be significantly reduced or eliminated by providing an oxygen-reservoir in intimate
contact with the oxidative enzyme. This is achieved by making a stabilized emulsion
between the enzyme and a compound in which oxygen is extremely soluble. An aqueous
glucose oxidase solution is emulsified with a perfluorocarbon liquid, and the resulting
emulsion is stabilized by chemically crosslinking the mixture to form a gel. Thin layers
of the emulsion are fabricated by spreading a layer of the liquid emulsion before gelation
10 occurs. Additional carrier proteins such as albumin may be added to the enzyme prior to
crosslinking to protect enzymatic activity and enhance gel strength. Additional electron
transport compounds may be added to further reduce sensitivity to oxygen concentration.